Pompous Piping

Release candidate version (from 2018_0510_xxxx)

May 10, 2018

Contents

First thing first

This document is not complete: I will try to explain the most important functions, but you may discover more during using PomPi. I hope you will enjoy!

This plugin was created and only tested in Windows environment and may not function well on a MAC. Any feedback of MAC users is welcome!

The "2016" in the name of the tool is intentional, it is referring that fact it may not work on future SKETCHUP versions… but:

Tested: SKETCHUP PRO 2014 on Windows 7, SKETCHUP PRO 2015&2016 on Windows 10. Partly tested on **SKETCHUP Make** 2017, but **some** functions (create T, reducers…) are not working on it, because e.g. "subtract" "union" **functions are not supported** in free version. Partly tested on SKETCHUP PRO 2018 too and it's okay on it.

I'm using millimeter unit, I do hate inch... (but since inch is native SketchUp unit, it is implemented and it should work).

This plugin is using some bits from others. If you want to (and can), please check it in the program code files, and give thanks / credits / donation to them! I hope, I did not forget someone to mention…

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THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY WARRANTIES. I am not responsible for any damages caused. Use it on your risk.

However, if you like, feel free to buy me a cup of coffee: please click on the coffee cup on PomPi interface.

The plugin is in [Release Candidate] stage (as well as this document) meaning it is almost ready, you can use it but please don't ask for any deadline to fully finalize or modify…I'm not a programmer, I did it for fun!

Finally, I would like to ask you please do not disturb me with your e-mails. Please go to sketchUcation plugins forum (http://sketchucation.com/forums/viewtopic.php?f=323&t=65233). If I will have time, I'll try to help there.

Main features

- **Easy to predefine and load your own dimension's library by CSV file. (examples included)**
- **Two-tree clicks to create and orient simple pipe, bend, reducer, flange, union or T.**
- **Aided line tool for define your piping path. NEW!**
- **Convert all selected edges to bends and pipes.**
  - **Similar to Pipe Along Path, but "fillet" the connection points by elbow
    Not limited to one path.**
  - **To align connected end segments, pipe elements will be twisted automatically**
- **Convert all selected bends and pipes back to edges. NEW!**
- **You can create your own CSV file with your preferred standards (ANSI, ASME, ISO EN, JIS…or) whatever you want and determine the dimensions of pipe and fittings with only a click.**
- **Handle millimeter and inch**
- **Similar pipe elements will be same existing component but other instance.**
- **Easy to define cross section (profile) as circle, triangle, square, pentagon, hexagon .... (up to 96 side polygon or circle). You can rotate it too.**
- **Generate report about selected PomPi pipe elements, save it to CSV file and show in HTML window. NEW!**
- **"Side effect": PomPi weld! Joins selected edges into a 'curve'. NEW! It is similar to TIG-weld but using different method. You can select more edges loops and all will be converted until branching point(s).**
- **Simple, self-explaining user interface. Scalable/resizable html UI.**
- **Free!**

Install & uninstall

Install the provided **_Dezmo_pompi2016_XX_xxxx_xxxx_xxxx.rbz_** file as usual. (The method is not subject of this document.)

Menu: SketchUp Main Menu>> Extension (or Plugin)>> PomPi © by Dezmo

Toolbar enabling: SketchUp Main Menu>> View>> Toolbars>> PomPi 2016.

For uninstalling follow your usual method too. However, if you want to completely clean up you have to delete the following registry keys:

_[HKEY_CURRENT_USER\SOFTWARE\SketchUp\SketchUp 2015\WebDialog_PomPi_Warning]_

_[HKEY_CURRENT_USER\SOFTWARE\SketchUp\SketchUp 2015\WebDialog_Dezmo_PomPi_2016_0_v]_

_[HKEY_CURRENT_USER\SOFTWARE\SketchUp\SketchUp 2015\Pompi_2016b0_dialog_data]_

_[HKEY_CURRENT_USER\SOFTWARE\SketchUp\SketchUp 2015\WebDialog_PomPi_Report]_

_[HKEY_CURRENT_USER\SOFTWARE\SketchUp\SketchUp 2015\WebDialog_dummie_

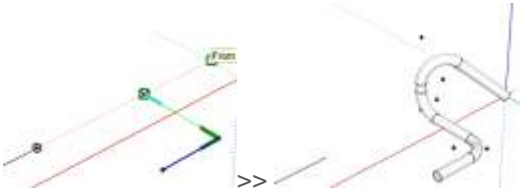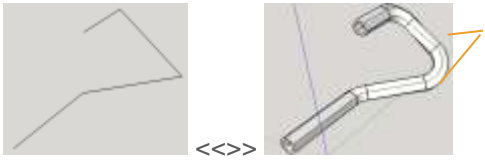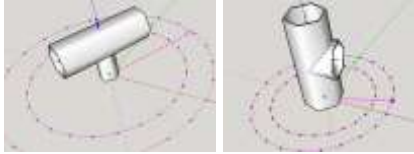_Only in beta versions: [HKEY_CURRENT_USER\SOFTWARE\SketchUp\SketchUp 2015\WebDialog_Dezmo_PomPi_2016_0]_

Substitute "SketchUp 2015" with your current version of SketchUp.

Functions

You can create infinite variety of simplified pipe elements as component like:

HTML dialog buttons:

Symbol	Description	Example
	Aided tool to draw your edges and then convert these connected edge(s) to pipes and bends. Some pipe elements will be twisted to align both end segments. The possible "lengths" of bend are highlighted. Indication if the bends are not fit. Extra "lock" on perpendicular plane to last edge can be toggled. Double click to finish the line-set without converting or press Return to convert. Double right click to undo last edge.	>>
	Convert selected edges (lines) to pipes and bends and back, depends on the selection. Some pipe elements will be twisted to align both end segments. (Please check page 8 for note!) I'm strongly advise to close your Component browser, Outliner and Ruby console if you want to convert lots of edges to pipes and bends!	<<>>
	Create single Pipe and rotate it after place.	
	Create single Bend (or elbow or curved pipe) and rotate it after place. Hit "shift" button to toggle insertion point.	
	Create singe Equal T, Reduced Equal T and rotate it after place. Hit "shift" button to toggle insertion point.	
	Create singe Short T, Reduced Short T and rotate it after place. Hit "shift" button to toggle insertion point.	
	Create single Reducer concentric and rotate it after place. Hit "shift" button to toggle flip.	
	Create single Reducer eccentric and rotate it after place. Hit "shift" button to toggle flip.	
	Create single Union (stainless steel coupling for food/milk industry) and rotate it after place.	
	Create single Flange and rotate it after place.	
	Create single "fake" union (aka a cylinder with a bigger cylinder in the middle) and rotate it after place.	
	Create single "fake" flange (aka disk) and rotate it after place.	

The undo function mostly divided by two steps: undo rotation and undo place components.

The components are placed to actual layer. The geometry itself is on Pompi_@ layer, the center lines are in Pompi_cl layer, the guide points of bends are in the Pompi_cp layer. If you switch on/off these layers to get simplified drawing or e.g. you can easy put "T" to pipe… If you delete the Pompi_cp, Pompi_cl layers and its content, the PomPi components became to solids, but you will lose your "caching" points.

Toolbar buttons (Modifier tools):

	Start the HTML UI	Disabled if the HTML UI is already opened.
	PomPi weld: Joins selected edges into a 'curve'. NEW!	It is similar to TIG-weld but using different method. You can select more edges or loops and all will be converted until branching point. The branching may cause some unexpected result. You must select one or more edge to enable this button.
	Z-axis Rotate single PomPi component Hit "shift" button to toggle rotation axis.	However, it is designed for rotate PomPi elements, eventually you can use it for any single component or group (toggle axis does not work there.) You must select only one component or group to enable this button.
	Z-axis Twist PomPi pipe. Hit "shift" button to toggle which end face will twisted.	It is works only on PomPi pipe component, to twist/align the pipe segment to adjacent pipe. Twisting angle is limited to ±AS/2. You must select only one PomPi pipe to enable this button.
	Generate report about selected PomPi pipe elements, save it to CSV file and show in HTML window. NEW!	It is works only on PomPi pipe component. You must select at least one PomPi component to enable this button.

User interface

"Side effect": Weld edges
Joins selected edges into a 'curve'.

PomPi 2016

PomPi Toolbar

Scale

Theme

Donate

User Interface
You can resize it for your taste

Annoyed by result window:
Uncheck to disable it.

You may have to resize and move the HTML UI window during first use to fit your work environment...

Hover over your mouse to get self-explanations of different UI elements.

- **Toolbar buttons**
  The different buttons are alive only if some conditions are true, see above in previous chapter.

- **HTML dialog toolbar buttons & UI style**
  Click the one of the button to get the function
  Click on Coffee cup to send donation
  Hover over PomPi to stop animation

- **CSV file and dimension selection**
  Last used file will load next time

- **Segments behavior**
  Element values in this frame are stored and will load next time.

- **Dimension selection**
  It is automatically selected if the CSV file loaded and CSV file is according to requirement's, see below...

- **Dimensions manual entering fields**
  You can manually override the dimensions
  If you select dimension from above 'Dimension selection' this will be overwritten.
  There are some automatic corrections on input fields, e.g. comma replaced by period, bigger inside diameter will be corrected to 'o'....

- **Reset / Copyright** (version) / **Help** (open this manual)

Always look for VCB for useful information's:

User input handling, input limitations

I wanted to give as much freedom as possible to type what you want to the different fields and create lots of variety of elements. But of course the obvious mistakes have to be eliminated to avoid most of the crashes and SU BugSlpatch…

So still, please be carefully what you are typing in! If you type creasy numbers, you can expect creasy result… Very small dimensions (<1-2mm) will most probably be causing crash or will give unexpected result!

The following compromise rules will apply.

The wrong input will be replaced immediately or when you hover your mouse on the relevant toolbar item. When you hover your mouse on the actually used HTML toolbar item and the values are "technically" good (or at least in most case will not cause crash) those will be highlighted by green (or yellow) border. The wrong fields are mostly highlighted by yellow or red border. If there are red borders, the operation will be blocked.

- The decimal point is automatically replaced: "," ->"."

- The letters (not numbers) replaced by default values (or zero)

- If outside diameter is bigger than inside diameter the outside diameter will be replaced by zero. (Only the outer mesh will be drawn)

- Bend radius should be smaller than outside diameter/1.95 (DO1<1.95*RBE)

- Sort T length must be at least 1.05*DO1/2. (Automatically replaced)

- ….

- Please discover yourself the other rules… ;-)

Segment behavior fields, the reducer factor, the last loaded CSV file and the last selected style stored in the registry and will be "remembered and loaded" next time when you are opening PomPi UI.

PomPi component names, CSV report file generation

Component names (Definition Names) are determined by dimensions and other properties from UI or measured length/angle.

The Component Definition Description will be: "PomPi" + 'current date & time' (Creation time)

If there is same definition name of component already exist PomPi will place an instance of it. If you willing to edit the PomPi definition name, or the PomPi component geometry manually, you may get an unexpected result. I told you!

You can see the preliminary name of component(s) when you hover your mouse on HTML toolbar.

The dimensions in the name depends on the selected dimension of PomPi HTML UI, BUT the pipes lengths are determined by the current unit of your current SketchUp season. Don't mix it. I told you!

If you select one or more PomPi components you can generate the CSV file. The data's in the file will be based on the component names. The CSV file will be saved beside your original skp, then displaying it in HTML window.

This CSV is coma " **,** " separated, so the decimal delimiter is period " **.** ".

The file name will be: *original_skp_name*-PomPi Report.csv

CSV library file rules

The CSV file is comma (**,**) separated file contains the pipe element dimensions. The decimal point is period (**.**).

DIN 11866 Row C,DO1,DI1,LTS,RBE,DUN,TUN,LUN,DFL,CFL,TFL
OD1,25.4,22.2,15,37,63,21,45,95,65,14,
OD1.5,38.1,34.9,22,52,78,21,53,150,110,16
OD2,50.8,47.6,30,75,92,22,57,165,125,18
OD2.5,63.5,60.3,37,90,112,22,65,185,145,18
OD3,76.2,73,44,95,119,25,65,185,145,18
OD4,101.6,97.6,59,153,148,31,89,220,180,20
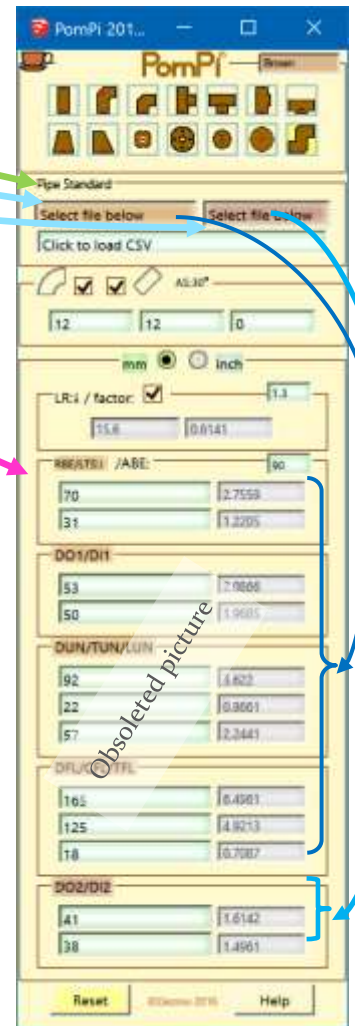
Standard

Nominal diameter name for selection

Data (dimensions)

Names (dos not really matter, but commas should be there)

There are 4 example files in your install directory:

mm_DIN_DN.csv, mm_DIN_OD.csv, in_DIN_OD.csv

mm_DIN_DN_simple.csv: same as mm_DIN_DN.csv but DI1/DI2 = 0, for
conceptual pipes.

(usually in: c:\Users*your_user_name*\AppData\Roaming\SketchUp\SketchUp
2015\SketchUp\Plugins\Dezmo_pompi2016\ )

The file name **must** be start with 'mm' or 'in', this will determine PomPi to select the right dimension during loading
CSV file.

Note: If your file is containing dimensions in inch and you were selected mm for dimension than inch will be pushed to
mm filed, please take that into consideration... There is a warning about it!

**Since the main feature of this plugin to use the CSV file, the last used CSV file will be loaded next time when
you open the UI**, even you have been used Reset button to unload it. (if last used CSV has been deleted the default
'mm_DIN_DN.csv' will be used. If that one is also missing, you are in a trouble…)

BTW: The HTML windows name contains the actual PomPi installation directory location… it will help you to locate the
example CSV files.

CSV rules

Note & Examples

I'm strongly advise to close your Component browser, Outliner and Ruby console if you want to convert lots of edges to pipes and bends!

You can try to play with the dimensions, angles and segment behaviors to get interesting results, however be careful…because in some combination of inputs you will get nothing or error.

To play with bend angel and segment or reducer diameters…. is also interesting. For example, although there is not much sense, but you can draw more than 360° angle bend. ☺

Known issues, to-do

- Fine tune UI (Ugly icons…)
- The faces disturb the Pompi_Auto_tool, currently erased... (I think this will not change.)
- User input & Error handling is not that bad, but maybe still can be improved…
- If TWangle=AS/2 the ± determined "randomly" …
- Pompi_Auto_tool need to be more deeply tested. Most of the time works, but in some undefined condition can fail…
- Z-axis Twist may not function properly if you modified the pipe manually or with another tool.
- Test on MAC appreciated!
- ….
- Other small glitches (I'm just lazy or forget to write it down…)
- You know other?

Dimensions explained

D =
when DO1: 0..10.0 then (DFL-DO1)*0.4
when DO1: 10.0..25.0 then 11mm
when DO1: 25.0..65.0 then 14mm
when DO1: 65.0..250.0 then 18mm
when DO1: 250.0..600.0 then 22mm
when DO1: 600.0..700.0 then 26mm
when DO1: 700.0..1000.0 then 30mm
else 40mm